

REMARKS

As a preliminary matter, Applicants thank the Examiner for the courtesies extended to Applicants' representatives during the interview on July 8, 2009. During the interview, the rejections contained in the Office Action mailed on March 24, 2009 were discussed. The substance of the interview is incorporated in this response.

In the Office Action¹, the Examiner rejected claims 1-4, 6-9, and 11 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 5,726,920 to Chen et al. ("Chen") and rejected claims 5 and 10 under 35 U.S.C. § 103(a) as being unpatentable over Chen in view of JP 2000-269108 A to Tamaki et al. ("Tamaki").

Applicants respectfully traverse the rejection of claims 1-4, 6-9, and 11 under 35 U.S.C. § 103(a). A *prima facie* case of obviousness has not been established.

Claim 1 recites a method comprising, for example:

...
a continuity determination step of determining whether or not defective determination is made more than once and consecutively when said processed state has been determined to be defective through said processing state determination step; and

a processing control step of controlling processing such that processing of said member continuously performed through said processing step is stopped when a defective determination is determined to have been made more than once and consecutively through said continuity determination step,

wherein, if the defective determination is determined to have been made more than once and consecutively, a previously processed nondefective member is reprocessed and analyzed for defects before processing is stopped

...

¹ The Office Action contains a number of statements reflecting characterizations of the related art and the claims. Regardless of whether any such statement is identified herein, Applicants decline to automatically subscribe to any statement or characterization in the Office Action.

(emphasis added). *Chen* does not disclose each and every element of Applicants' claimed invention.

According to *Chen*, "database computer 150 can use data gathered over time from various sources (125, 125') to determine that an excessive number of failures are being detected and that there is a high probability (e.g. better than 90%) that the problem lies upstream in a given fabrication line 101a . . ." (col. 9, lines 6-11). The Examiner states, "database (190) tracks the progress of each wafer . . . [and] computer (150) tracks the progress of each wafer over time. Based on such teachings, it would have been obvious . . . to have made a defective determination more than once and consecutively, and to have stopped processing when defective determination was made more than once and consecutively" (Office Action at page 8).

Applicants continue to assert that determining "that an excessive number of failures are being detected," as recited in col. 9, lines 8-9 of *Chen*, does not teach or suggest consecutive defects. Even assuming that computer 150 tracks the progress of each wafer, *Chen* only discloses "an excessive number of failures." An "excessive number of failures" does not suggest "consecutive failures."

Applicants also note that a "defective determination" made "more than once and consecutively" is significant. As recited at page 25, lines 1-10 and page 25, line 18 - page 26, line 3 of the specification:

In order to stop processing and perform inspection, there is required consumption of lots of efforts and much time, such as those required to change the internal atmosphere to the atmosphere and again return the internal atmosphere to the vacuum environment. However, when anomalous processing of low continuity, such as that mentioned above, has arisen, stoppage of processing is inefficient. Even when

inspection or the like is performed, the anomaly is not attributable to a failure or the like. Therefore, the inspection will become totally useless.

As a matter of course, when a failure or the like has actually arisen in the system, a defective determination will be made continuously, and hence processing is terminated. In this case, losses due to the failure are merely "n" wafers and the time required by the processing.

As mentioned above, according to the present embodiment where, when anomalous processing has arisen, processing is suspended after continuity of the anomalous processing has been ascertained, useless stopping time and efforts, which are required for inspection, can be eliminated, so that high productivity can be embodied. (emphasis added).

Termination based on consecutive defects provides improved processing speed and efficiency, resulting in high productivity. Such improvements are significant. *Chen* is silent regarding processing that is “stopped when a defective determination is determined to have been made more than once and consecutively through said continuity determination step.”

Contrary to the Examiner's position, determining excessive failures cannot constitute stopping processing that is stopped when a “defective determination” is made “more than once and consecutively.” The Examiner's position that tracking the progress of wafers over time discloses consecutive failures is an impermissibly broad interpretation of the teachings of *Chen*. One of ordinary skill would not equate excessive failures with consecutive failures.

In addition to the above deficiencies of *Chen*, Applicants also submit that *Chen* fails to teach or suggest the claimed “wherein, if the defective determination is determined to have been made more than once and consecutively, a previously processed nondefective member is reprocessed and analyzed for defects before processing is stopped,” as further recited in claim 1.

The Examiner cites col. 9, lines 5-25 of *Chen* to allegedly disclose the above elements (Office Action at page 4). This is not correct.

According to *Chen*, the system may verify that a fault lies with the supply fabrication line 101a by “using a known-good wafer 113 to test the suspect FWS test station 110 before a line shutdown is authorized” (col. 9, lines 23-25). However, wafer 113 is not “reprocessed and analyzed for defects.” In contrast, wafer 113 is merely used to test the system. Testing the system to determine where a fault occurs does not teach or suggest reprocessing and analyzing a “previously processed nondefective member . . . for defects before processing is stopped.”

Chen further states that an FWS test is repeatedly run on wafer 113 so that equipment variables 126 and 127 can be adjusted to produce valid test results (col. 11, lines 24-29). Based on this passage, wafer 113 is not analyzed for defects. Instead, wafer 113 is merely used to calibrate variables 126 and 127. The system in *Chen* does not reprocess and reanalyze wafer 113 for defects. Therefore, *Chen* fails to teach or suggest the claimed “wherein, if the defective determination is determined to have been made more than once and consecutively, a previously processed nondefective member is reprocessed and analyzed for defects before processing is stopped,” as further recited in claim 1.

Accordingly, *Chen* fails to establish a *prima facie* case of obviousness with respect to claim 1. Thus, claim 1 is allowable for at least these reasons, and claims 2-4 are also allowable at least due to their depending from claim 1. Independent claims 6 and 11, though of different scope from claim 1, recite limitations similar to those set forth above with respect to claim 1 and is thus allowable over *Chen* for at least the same

reasons discussed above in regard to claim 1. Claims 7-9 are also allowable at least due to their depending from claim 6.

Regarding the rejection of claims 5 and 10, dependent from claims 1 and 6, respectively, the Examiner relies on *Tamaki* for allegedly disclosing “a management system for a semiconductor fabrication device” (Final Office Action at page 7). Even assuming this allegation is correct, which Applicants do not concede, *Tamaki* fails to cure the deficiencies of *Chen* discussed above. *Tamaki* discloses “a management system capable of analyzing the cause of outbreak of failures” (Abstract). *Tamaki* does not teach or suggest the claimed combination of elements including “a processing control step of controlling processing such that processing of said member continuously performed through said processing step is stopped when a defective determination is determined to have been made more than once and consecutively through said continuity determination step, wherein, if the defective determination is determined to have been made more than once and consecutively, a previously processed nondefective member is reprocessed and analyzed for defects before processing is stopped,” as recited in claim 1 and similarly recited in independent claim 6, and required by dependent claims 5 and 10.

Therefore, no *prima facie* case of obviousness has been established, and claims 5 and 10 are also allowable over *Chen* and *Tamaki*.

In view of the foregoing, Applicants respectfully request reconsideration of the application and withdrawal of the rejections. Pending claims 1-11 are in condition for allowance, and Applicants request a favorable action.

Please grant any extensions of time required to enter this response and charge any additional required fees to our deposit account 06-0916.

Respectfully submitted,

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